Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for producing a plurality of semiconductor chips, particularly radiation-emitting semiconductor chips, each having at least one epitaxially produced functional semiconductor layer stack, comprising the following method steps: preparing a growth substrate wafer substantially comprised of semiconductor material from a semiconductor material system that is in terms of lattice parameters the same as or similar to that on which a semiconductor layer sequence for the functional semiconductor layer stack is based, forming in said growth substrate wafer a separation zone disposed parallel to a main face of said growth substrate wafer, joining said growth substrate wafer [[(1)]] to an auxiliary carrier wafer, detaching along said separation zone [[(4)]] a portion of said growth substrate wafer that faces away from said auxiliary carrier wafer as viewed from said separation zone, forming on the portion of said growth substrate wafer remaining on said auxiliary carrier wafer a growth surface for subsequent epitaxial growth of a semiconductor layer sequence, epitaxially growing said semiconductor layer sequence on said growth surface, applying a chip substrate wafer to said semiconductor layer sequence, detaching said auxiliary carrier wafer, and singulating the composite composed of said semiconductor layer sequence and said chip substrate wafer into mutually separate semiconductor chips.

2. (Previously Presented) The method according to claim 1, wherein prior to the application of said chip substrate wafer, said semiconductor layer sequence is structured into a plurality of epitaxial semiconductor layer stacks disposed side by side on said auxiliary carrier wafer.

3. (Previously Presented) The method according to claim 2, wherein at least sidewalls of said epitaxial semiconductor layer stack are provided at least partially with passivating material.

4. (Previously Presented) The method according to claim 1, wherein prior to the application of said chip substrate wafer, said epitaxial semiconductor layer sequence is provided with an electrical contact layer.

5. (Previously Presented) The method according to claim 1, wherein said separation zone is produced by ion implantation.

6. (Original) The method according to claim 5, wherein hydrogen is implanted.

7. (Previously Presented) The method according to claim 1, wherein the portion of said growth substrate wafer facing away from said auxiliary carrier wafer as viewed from said separation zone is thermally cleaved along said separation zone.

8. (Previously Presented) The method according to claim 1, wherein said auxiliary carrier wafer is transparent to electromagnetic radiation with wavelengths below 360 nm.

9. (Previously Presented) The method according to claim 1, wherein said auxiliary carrier wafer is transparent to high-energy electromagnetic radiation, particularly laser radiation.

10. (Previously Presented) The method according to claim 9, wherein said auxiliary carrier wafer is detached from said semiconductor layer sequence or from said semiconductor layer stack by a laser liftoff process.

11. (Previously Presented) The method according to claim 1, wherein said auxiliary carrier wafer is matched in terms of thermal expansion coefficient to said growth substrate wafer.

12. (Currently Amended) The method according to claim 1, wherein said auxiliary carrier wafer [[(2)]] is polycrystalline.

13. (Previously Presented) The method according to claim 1, wherein the joint between said growth substrate wafer and said auxiliary carrier wafer is produced by means of silicon oxide.

14. (Previously Presented) The method according to claim 1, wherein said semiconductor layer sequence includes at least one semiconductor layer based on GaN and the material of said growth substrate wafer is also based on GaN.

15. (Previously Presented) The method according to claim 14, wherein said auxiliary carrier wafer is composed of sapphire and/or AlN.

16. (Previously Presented) The method according to claim 1, wherein said growth surface is prepared for the epitaxial growth of said semiconductor layer sequence by etching and/or grinding.